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10/000,206

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Nicolo F. Machi

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Larry J. Palguta
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EXAMINER

QUASH, ANTHONY G

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,206

Applicant(s)

MACHI, NICOLA F.

Examiner

Anthony Quash

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/5/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4,6,8-11,23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer [435] in view of German [218] and in further view of Milano [215]. As per claims 1, 2, 23, Palmer [435] teaches a light assembly comprising a housing, at least one light emitting diode (24) disposed in a base the light emitting diode adapted to emit infrared light, at least one aspheric lens (94) (which is a collimating lens) connected to the top portion the housing the aspheric lens being adapted to collimate the infrared light to produce a beam of infrared light, wherein the infrared light emitted by the light emitting diode radiates through the hollow to the aspheric lens. See Palmer [435] abstract, figs. 2a-2b, col. 2 lines 10-20, 50-55, col. 3 lines 1-45, col. 4 lines 1-7, 55-65, col. 5 lines 10-20, col. 6 lines 10-15, and col. 7 lines 15-20. However, Palmer [435] does not explicitly state that housing be thermally conductive nor does it explicitly state that the light be non-coherent. However, German [218] does teach a light assembly comprising a housing being made of aluminum (which is thermally conductive, this is a property of metals such as aluminum) having a bottom portion, top portion and a base in which a lighting means is disposed. In addition German [218] teaches use of copper material for providing additional means for dissipating heat. See German [218] col. 6

lines 15-24 and col. 8 lines 24-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the bottom portion, top portion and base of the housing be constructed of aluminum due to its strength, durability, shock resistivity and resistance to environmental hazards as taught in German [218]. With respect to the applicant's claim concerning the light being non-coherent, Milano [215] teaches a light assembly comprised of an infrared diode in which the emitted light is non-coherent. See Milano [215] abstract, fig. 2, col. 1 lines 60-67, col. 2 lines 15-20, 36-65, col. 3 lines 30-40, col. 4 lines 38-55, and col. 5 lines 30-55. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made use light that was non-coherent in order to allow visual communication between individuals on the battlefield without damaging the eyes of the user due to lasers as taught in Milano [215].

As per claims 3,15, Palmer [435] teaches the housing being substantially cylindrical. See Palmer [435] figs. 1-2b, col. 3 lines 1-15, and 40-50.

As per claims 4,16, both Palmer [435] and German [218] teach the base being integrally connected to the housing. See Palmer [435] figs. 2a-2b, and German [218] figs. 3-4a.

As per claims 6,18, German [218] teaches the aspheric lens (22) having a substantially flat inner surface and a convex outer surface. See German [218] figs. 4a.

As per claim 8,20, Milano [215] teaches the light assembly substantially being maintained a predetermined operating temperature such that the peak emission of the

light emitting diode being substantially maintained. See Milano [215] col. 5 lines col. 5 lines 40-55. Also see German [28] col. 9 lines 27-36.

As per claim 9, Milano [215] teaches the peak emission of the light emitting diode being substantially maintained at about 880 nm. See Milano [215] col. 5 lines col. 5 lines 40-55.

As per claims 10,21, Palmer [435] in view of German [218] and in further view of Milano [215] teach all aspects of the claim except for explicitly stating that power requirement of the light assembly be in the range from about 10 watts to about 20 watts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the power requirement of the light assembly be in the range from about 10 watts to about 20 watts, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As per claims 11,22, Palmer [435] teaches the light assembly being a unit located within the lamp head. See Palmer figs. 2a-2b.

2. Claims 12-16,18,20-22,24 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer [435] in view of German [218] and in further view of Milano [215]. As per claims 12,14,24 Palmer [435] teaches a light assembly comprising a housing, at least one light emitting diode (24) disposed in a base the light emitting diode adapted to emit infrared light, at least one aspheric lens (94) connected to the top portion the housing the aspheric lens (which is a collimating lens) being adapted to collimate the infrared light to produce a beam of infrared light, wherein the infrared light

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emitted by the light emitting diode radiates through the hollow to the aspheric lens. See Palmer [435] abstract, figs. 2a-2b, col. 2 lines 10-20, 50-55, col. 3 lines 1-45, col. 4 lines 1-7, 55-65, col. 5 lines 10-20, col. 6 lines 10-15, and col. 7 lines 15-20. However, Palmer [435] does not explicitly state that housing be thermally conductive nor the does it explicitly state that the light be non-coherent. However, German [218] does teach a light assembly comprising a housing being made of aluminum (which is thermally conductive, this is a property of metals such as aluminum) having a bottom portion, top portion and a base in which a lighting means is disposed. In addition German [218] teaches use of copper material for providing addition means for dissipating heat. See German [218] col. 6 lines 15-24 and col. 8 lines 24-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the bottom portion, top portion and base of the housing be constructed of aluminum due to its strength, durability, shock resistivity and resistance to environmental hazards as taught in German [218]. With respect to the applicant's claim concerning the light being non-coherent, Milano [215] teaches a light assembly comprised of an infrared diode in which the emitted light is non-coherent. In addition, Milano [215] teaches that it was known to use a thermal electric cooler adapted to dissipate heat generated by the light emitting diode. See Milano [215] abstract, fig. 2, col. 1 lines 60-67, col. 2 lines 15-20, 36-65, col. 3 lines 30-40, col. 4 lines 38-55, and col. 5 lines 30-55. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made use light that was non-coherent in order to

allow visual communication between individuals on the battlefield without damaging the eyes of the user due to lasers as taught in Milano [215].

As per claim 13, Palmer [435] in view of German [218] and in further view of Milano [215] teach all aspects of the claim except for explicitly stating the thermal electric cooler being positioned between the base and the light emitting diode. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the thermal electric cooler be positioned between the base and the light emitting diode, since it has been held that rearranging parts of an invention involves only routine skill in the art.

3. Claims 1-4,6-7,23 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers [595] in view of German [218]. As per claims 1,2,23, Meyers [595] teaches a light assembly comprising a housing having a bottom portion and a top portion, the housing being hollow, and a base, at least one light emitting diode (30) disposed at the base, the light emitting diode adapted to emit infrared light, the light being non-coherent and non-directional, at least one lens connected to the top portion of the housing, the lens (34) adapted infrared light to produce a beam of infrared light. See Meyer [595] abstract, fig. 2, columns 2-3, and col. 4 lines 25-40. However Meyer [595] does not explicitly state the lens being aspheric. Meyer [595] does teach the lens/lens assembly collimating the light. See Meyer [595] fig. 2, and col. 3 lines 55-65. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the lens assembly in Meyer [595], since it performs the same function as the aspheric lens in applicant's invention. However, Meyers [595]

does not explicitly state that the bottom portion, top portion, and base be formed of thermally conductive material. German [218] does however teach a light assembly comprising a housing having a bottom portion, top portion and base made out of aluminum for housing a light emitting means. See German [218] figs. 3, 4a, and col. 6 lines 19-25. Since, it is well known that metals such as aluminum are thermally conductive it is the examiner's view that German [218] teaches a light emitting means disposed at a thermally conductive housing base and is adapted to emit infrared light through a hollow of the housing to an aspheric lens. See German [218] col. 6 lines 15-24 and col. 8 lines 24-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the light emitting diode be disposed at a thermally conductive housing base made of aluminum because of its strength, durability, shock resistivity and resistance to environmental hazards as taught in German [218].

As per claim 3, Meyer [595] teaches the housing being substantially cylindrical. See Meyer [595] figs. 1-3.

As per claim 4, Meyer [595] teaches the base being integrally connected to the housing. See Meyer [595] figs. 1-3.

As per claim 6, Meyer [595] teaches the lens (34) having a substantially flat inner surface and a convex outer surface. See Meyer [595] fig. 2.

As per claim 7, Meyers [595] in view of German [218] teach all aspects of the claim except for explicitly stating that the NVIS radiant intensity being greater than about 2. It would have been obvious to one having ordinary skill in the art at the time the

invention was made to have the NVIS radiant intensity be greater than about 2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As per claim 9, Meyer [595] teaches all aspects of claim except for specifically stating that the peak emission of the light emitting diode being substantially maintained at about 880 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the peak emission of the light emitting diode be substantially maintained at about 880 nm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

4. Claims 5,10,11 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers [595] in view of German [218] and further in view Houseman [534]. As per claim 5, Meyers [595] teaches all aspects of the claim except that the aspheric lens has a focal point, and that the IR diode is slightly offset the focal point. Houseman [534] teaches that the aspheric lens has a focal point, and that the IR diode is slightly offset the focal point. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the IR diode is slightly offset from the focal point in the aspheric lens in order to reduce sensitivity to misalignment as taught in Houseman [534].

As per claim 10, Houseman [534] teaches that the power requirement for the light assembly is in the range from about 10 watts to about 20 watts. See Houseman [534] col. 3 lines 50-69.

As per claim 11, Houseman [534] teaches the light assembly being a unit located within a lamp head. See Houseman [534] col. 3 lines 50-69.

5. Claim 8 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers [595] in view of German [218] and further in view of Klapper [882]. As per claim 8, Meyers [595] teaches all aspects of the claim except that the assembly substantially maintains a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. However Klapper [882] teaches substantially maintaining a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. See Klapper [882] col. 4 lines 55-62. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide means for substantially maintaining the temperature in order to eliminate errors that would result from fluctuations in sensitivity due to fluctuations in the temperature of the assembly.

6. Claims 12-16,18-20,24 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers [595] in view of German [218] and further in view Klapper [882]. As per claims 12, 14, 24, Meyers [595] teaches a light assembly comprising a thermally conductive housing having a bottom portion and a top portion, the housing being hollow, and a thermally conductive base, at least one light emitting diode (30) disposed at the base, the light emitting diode adapted to emit infrared light, the light being non-coherent and non-directional, at least one lens connected to the top portion of the housing, the lens (34) adapted infrared light to produce a beam of infrared light. See Meyer [595] abstract, fig. 2, columns 2-3, and col. 4 lines 25-40. However Meyer

[595] does not explicitly state the lens being aspheric. Meyer [595] does teach the lens/lens assembly collimating the light. See Meyer [595] fig. 2, and col. 3 lines 55-65. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the lens assembly in Meyer [595], since it performs the same function as the aspheric lens in applicant's invention. However, Meyers [595] does not explicitly state that the bottom portion, top portion, and base be formed of thermally conductive material. German [218] does however teach a light assembly comprising a housing having a bottom portion, top portion and base made out of aluminum for housing a light emitting means. See German [218] figs. 3, 4a, and col. 6 lines 19-25. Since, it is well known that metals such as aluminum are thermally conductive it is the examiner's view that German [218] teaches a light emitting means disposed at a thermally conductive housing base and is adapted to emit infrared light through a hollow of the housing to an aspheric lens. See German [218] col. 6 lines 15-24 and col. 8 lines 24-30. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the light emitting diode be disposed at a thermally conductive housing base made of aluminum because of its strength, durability, shock resistivity and resistance to environmental hazards as taught in German [218]. However, Meyer [595] does not explicitly state that at least one thermal electric cooler being connected to the IR diode. However, Klapper [882] does teach at least one thermal electric cooler being connected to the IR diode. See Klapper [882] col. 1 lines 10-21 and col. 4 lines 55-62. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to connect at

least one thermal electric cooler to the IR diode in order to increase sensitivity as taught in Klapper [882].

As per claim 13, Klapper [882] teaches at least one thermal electric cooler between the base and the IR diode. See Klapper [882] col. 1 lines 10-21 and col. 4 lines 55-62.

As per claim 15, Meyer [595] teaches the housing being substantially cylindrical. See Meyer [595] figs. 1-3.

As per claim 16, Meyer [595] teaches the base being integrally connected to the housing. See Meyer [595] figs. 1-3.

As per claim 18, Meyer [595] teaches the lens (34) having a substantially flat inner surface and a convex outer surface. See Meyer [595] fig. 2.

As per claim 19, Meyers [595] in view of German [218] and further in view Klapper [882] teach all aspects of the claim except for explicitly stating that the NVIS radiant intensity being greater than about 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the NVIS radiant intensity be greater than about 2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As per claim 20, Meyers [595] teaches all aspects of the claim except that the assembly substantially maintains a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. However Klapper [882] does teach substantially maintaining a predetermined operating temperature such that the peak emission of the light emitting diode is substantially maintained. See

Klapper [882] col. 4 lines 55-62. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide means for substantially maintaining the temperature in order to eliminate errors that would result from fluctuations in sensitivity due to fluctuations in the temperature of the assembly.

7. Claims 17,21,22 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers [183] in view of German [218] and further in view Klapper [882] and Houseman [534]. As per claim 17, Meyers [183] in view of Klapper [882] teach all aspects of the claim except that the aspheric lens has a focal point, and that the IR diode is slightly offset the focal point. Houseman [534] teaches that the aspheric lens has a focal point, and that the IR diode is slightly offset the focal point. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the IR diode is slightly offset from the focal point in the aspheric lens in order to reduce sensitivity to misalignment as taught in Houseman [534].

As per claim 21, Houseman [534] teaches that the power requirement for the light assembly is in the range from about 10 watts to about 20 watts. See Houseman [534] col. 3 lines 50-69.

As per claim 22, Houseman [534] teaches the light assembly being a unit located within a lamp head. See Houseman [534] col. 3 lines 50-69.

Response to Arguments

8. Applicant's arguments filed 5/17/04 have been fully considered but they are not persuasive. In response to applicant's argument that Palmer [435] in view of German [218] and in further view of Milano [215] do not teach reasons for incorporating a heat sink structure in German [218], the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In addition, it is the examiner's view that Milano [215] does teach additional reasoning for adding a heat sink. This is made evident when Milano [215] states, "... a particularly preferred IR-LED for the interrogator device is a standard 880 nm GaAlAs emitter which can provide over 100 mW of continuous eye safe output power. In addition to their superior power output capacity, the 880 nm emitters can operate with less required thermal sinking..." See Milano [215] col. 5 lines 40-55. (This does not mean no thermal sinking.) "Despite the superior temperature/operability envelope of 880 nm emitters, GaAlAs emitters still require some small cooling solutions..." See Milano [215] col. 5 lines 40-55.

In response to the applicant's arguments concerning the Meyers [595] in view of German [218] rejection not having a light emitting diode disposed at a thermally conductive base, which is adapted to emit IR light through a hollow to a collimating lens, it is the examiner's view that the prior art listed does. See German [218] col. 6 lines 15-25, fig. 4a, and the passages listed in the above rejection. Here German [218] clear

teaches the light emitting part being located in a thermally conductive housing (15).

Meyers [595] having a similar configuration teaches an IR diode being located in the same in a similar location as the light emitting part in German [218]. See Meyers [595] abstract and fig. 2. The reasons for combining are listed above in the rejection.

In addition, should the applicant wish to discuss any further issues regarding the rejections, the applicant is welcome to set up an interview.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (571)-272-2480. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (571)-272-2477. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956 or to the official fax number (703)-872-9306.

A. Quash

A.2.
8/8/04

Nikita Wells
NIKITA WELLS
PRIMARY EXAMINER
08/09/04